

REPORT ON SOME PARASITIC AND PREDACEOUS DIPTERA FROM NORTHEASTERN NEW MEXICO.

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The diptera noted and described in this paper were all collected in Colfax County, New Mexico. With but few exceptions, they were taken during the latter half of July and the first half of August, 1913. The work was undertaken in connection with an investigation of the New Mexico range caterpillar (*Hemileuca olivix* Cockerell) at present being carried on by the United States Department of Agriculture, Bureau of Entomology, under the immediate supervision of Prof. F. M. Webster, expert in charge of cereal and forage insect investigations.

The purposes of these collections were: First, to ascertain what species of parasitic diptera are present throughout the area most infested by *Hemileuca* with a view to their utilization in the combat against this insect. Second, to facilitate the determination of such parasitic or predaceous diptera as may be used for experimental purposes in the range caterpillar investigations. The camp established for this latter project was used as a base of operations for these collections. This is situated on the open mesa and located about 18 miles almost due south of Raton, directly on the old "Santa Fé trail." Three miles to the westward, the foothills of the Sangre de Cristo Range of the Rocky Mountains rise abruptly to a height of from 1,500 to 2,000 feet above the plains. From thence westwardly, a continuous series of benches rises one above the other until the main range is reached, some 60 or 70 miles distant.

The valley is bounded on the north by the Raton Range and partially inclosed to the eastward by more or less isolated peaks rising to a height of 2,000 or 2,500 feet above the plains, which are said to lie at an elevation of about 6,500 feet, sea level datum. Several of the peaks are surrounded by extensive mesas, the level of which lie at an elevation of from 500 to 1,000 feet higher than the surrounding plain and possess a rather abundant vegetation.

One of these, namely, that of Eagle Tail Mountain, was explored and collections made. The insect fauna of the entire region worked

over is mainly that of the Upper Sonoran life zone. This of course merges into that of the transition zone on the slopes of the mountains and foothills.

That the insect life of this semiarid region is surprisingly abundant is attested by the large amount of material secured within a very limited period of time. That is to say, about 25 days, which period was materially reduced by inclement weather to not more than 20 days actual collecting.

Some 30 or more species of Tachinidæ were secured; several of these represent genera or species new to science. The most remarkable of these is the form described below as *Neodichocera tridens*, new species, giving rise to a new genus. This is a fission tachinid, and the first species recorded from North America possessing three divisions of the third antennal joint.

The most abundant families of diptera found in the region explored are Bombyliidæ, Asilidæ, and Tachinidæ in the order named. The Bombyliidæ are the most generally distributed, with the Asilidæ second. On the other hand, the Tachinidæ, while abundant in species, are apparently much localized in distribution. Also, practically all of the species and individuals collected, excepting those from the immediate vicinity of water, are of small or medium size. Thus in the vicinity of the Red River, a mere brook during the warmer part of the summer, several large specimens of *Gonia capitata* were taken. Near irrigation ponds specimens of *Phorocera claripennis* were collected which are at least 3 times as large as most individuals collected on the dry mesa. Specimens secured upon the slopes of the foothills and also on the summit of Eagle Tail Mountain, where the precipitation is considerable, average much larger in size than those from the plains. This may be due to a greater abundance of host insects or to the presence of host species which do not exist on the more arid plains. Specimens of *Musca domestica* were seen near the summit of Eagle Tail, miles away from human habitations. One specimen of *Myiospila mediatubunda* was also taken about 100 feet below the summit.

Stomoxys calcitrans is abundant, widely distributed and extremely troublesome to man and beast during the warmer parts of the day. Strange to say, hordes of hungry mosquitoes sometimes appear after one of the furious rains which occasionally visit the plains. These follow one about in the burning sunshine and bite during the daytime, but are not very troublesome at night within the tents. No blood-sucking diptera other than those mentioned above were found.

The writer is greatly indebted to Mr. V. L. Wildermuth and other members of the range caterpillar camp for notes, specimens, and many courtesies extended and offers his hearty thanks to them one and all.

All types and specimens mentioned herein are deposited in the United States National Museum in Washington.

Since the insect fauna of the region explored is very little known a list of the species collected is included together with such annotations as are deemed of importance.

Family NEMISTRINIDAE.

RHYNCOCEPHALUS VOLATICUS Williston.

One specimen of this rare fly collected from awning in camp by Mr. Donald J. Caffrey, July 28.

Family BOMBYLIIDAE.

Genus *EXOPROSOPA* Macquart.

EXOPROSOPA ROSTRIFERA Jaenicke.

Exceedingly abundant everywhere on the mesa.

EXOPROSOPA DORCADION Osten Sacken.

Common but difficult to approach.

EXOPROSOPA PUEBLENSIS Jaenicke.

One specimen, July 30.

Genus *ANTHRAX* Scopoli.

ANTHRAX LATERALIS Say.

Very abundant on mesa.

ANTHRAX ALCYON Say.

Common during early August.

ANTHRAX BIGRADATA Loew.

One specimen August 5.

ANTHRAX EDITIA Say.

Common during early August.

ANTHRAX MOLITOR Loew.

One specimen August 6.

ANTHRAX ANNA Coquillett.

Abundant on mesa from late July to August 10.

ANTHRAX CYRTIS Coquillett.

Two specimens August 7; mesa.

Genus *PTHIRIA* Meigen.

PTHIRIA SULPHUREA Loew.

Two specimens on flowers of *Grindelia* near irrigation pond July 31.

Genus *TOXOPHORA* Meigen.

TOXOPHORA PELLUCIDA Coquillett.

One specimen from border of irrigation pond July 21.

Genus *GERON* Meigen.

GERON SENLIS Fabricius.

Abundant on mesa during early August.

Genus LORDOTUS Loew.

LORDOTUS GIBBUS Loew.

Common on mesa after August 1.

Family ASILIDAE.

Genus HETEROPOGON Loew.

HETEROPOGON SENILIS Bigot.

One specimen from Eagle Tail Mountain, 7,500 feet.

Genus MALLOPHORA Macquart.

MALLOPHORA GULDIANA Williston.

One specimen from foothills July 29.

MALLOPHORA CLAUSICELLA Macquart.

One specimen from mesa August 5.

Genus PROCTACANTHUS Macquart.

PROCTACANTHUS MILBERTII Macquart.

This large species swarms over the plains during the hottest part of the day. It feeds largely upon half grown grasshoppers. One individual was found to have a medium sized stout skipper butterfly in its grasp.

Genus STENOPOGON Loew.

STENOPOGON PICTICORNIS Loew.

Very common on mesa. Recorded as eating *Hemileuca* by Mr. C. N. Ainslie but also feeds largely upon grasshoppers, butterflies, etc.

Genus OSPRIOCERUS Loew.

OSPRIOCERUS ABDOMINALIS Say.

Found rather commonly at all elevations. Flies heavily and is easily captured.

OSPRIOCERUS MINOS Osten Sacken.

Equally abundant and often found in company with the preceding species, of which it may be merely a color phase. A specimen had killed and was devouring another of the same species.

Genus ERAX Scopoli.

ERAX STAMINEUS Williston.

Rather common on the mesa during early August.

ERAX VARIPES Williston.

Equally common and found with the preceding species.

Genus DEROMYIA Philipi.

DEROMYIA PERPLEXA Back.

The commonest Asilid on the mesa during early August. One individual was devouring a beetle of the genus *Hister*.

Genus ASILUS Linnaeus.

ASILUS PRARIENSIS Tucker.

From mesa; August.

ASILUS LEUCOPOGON Williston.

From mesa; August.

ASILUS TENEBROSUS Williston.

Abundant in a rocky canyon in foothills July 19.

Family MUSCIDAE.

While most of the species mentioned below are not known to be parasitic in habit, the record of their occurrence and habits in this comparatively little known region are deemed of sufficient importance to merit inclusion here.

Genus PROTOCOLLIPHORA Hough.

PROTOCOLLIPHORA CHRYSORRHAEA Meigen.

Thirty specimens of this fly were reared from a fledgling of the horned lark (*Otocoris alpestris*) by Mr. Wildermuth June 11. The larvæ were contained in purulent sores on the sides of the body near the legs and on the neck. The bird, although weak and emaciated, was able to flutter away after the maggots were removed. It was first discovered by John R. Sandige.

Genus CALLIPHORA Desvoidy.

CALLIPHORA COLORADENSIS Hough.

This species is common about prairie-dog towns on the mesa. It has the habit of flying into their burrows for some unknown purpose. After entering, the flies can often be heard buzzing, apparently deep down in the tunnel.

Genus STOMOXYS Geoffroy.

STOMOXYS CALCITRANS Linnaeus.

Very abundant as before noted.

Genus MUSCA Linnæus.

MUSCA DOMESTICA Linnaeus.

Abundant about Camp.

Genus MUSCINA Desvoidy.

MUSCINA STABULANS Fallen.

Abundant about Camp.

Genus PHORMIA Desvoidy.

PHORMIA REGINA Meigen.

Breeding in garbage pits in large numbers.

Genus ORTHELLIA Desvoidy.

ORTHELLIA CORNICINA Fabricius.

Present on the range.

Family SARCOPHAGIDAE.

Genus MICROCHAETINA v. d. Wulp.

MICROCHAETINA CINEREA v. d. Wulp.

A pair taken on the mesa August 10.

Family DEXIIDAE.

Genus RHYNCHIODEXIA Bigot.

RHYNCHIODEXIA FLAVOTESSELLATA, new species.

Plate 6, fig. 1.

Yellowish, opaque, wings hyaline, legs reddish, length 10-12 mm. Head at vibrissae as long as at base of antennae, inferior occiput swollen. Front in male one-fifth as wide as eye, in female distinctly wider than eye. Vitta dark brown, linear in male, less than one-half as wide as sides of front in female. Front in male olive gray. In female upper portion brown with whitish pollen, an olive gray quadrate patch enveloping base of antennae and extending nearly to anterior margin of eye. Face and cheeks in each sex brownish, thinly ochraceous pollinose, lower half of face on sides bearing a few scattered hairs.

Antennae in both sexes very short. In male less than one-half, in female slightly more than one-half length of facial plate. First and second joints yellow; third yellow at base, apical half black. Arista long plumose, at least twice length of third antennal joint. Facial depression narrower than sides of face, vibrissal angles approximated, vibrissae cruciate, situated fully the length of second antennal joint above oral margin. Ridges bristly on less than lowest fourth. Margin of face below vibrissae bearing a row of closely set slender macrochaetae. Cheeks slightly broader than one-half eye height, brownish with yellowish pollen. Proboscis brown, about one and one-fourth times height of head, lower half distinctly chitinized. Labella small, horny. Palpi yellow, slender, attached to proboscis at about one-third its length measured from base. Eyes bare. Thorax yellowish brown, ochraceous pollinose. Five longitudinal vittae visible, brown, the median and outer ones wide, the intermediate pair more grayish and narrow. Post-sutural bristles in these specimens three, sterno-pleural bristles three. Scutellum brown, ochraceous pollinose, bearing two pairs of long marginals and some smaller bristles. Also a pair of cruciate apical bristles. Abdomen elongate ovate, yellowish brown, pseudo-maculate with

yellowish, shining, pollen. First segment with a semicircular, black, subscutellar spot, destitute of median marginal bristles. Second, third, and fourth segments yellowish brown with a median, faint, blackish, band which becomes prominent in greasy specimens. These segments bear both discal and marginal macrochaetæ, the former sometimes arranged irregularly. Hypopygium reddish, nearly concealed in abdomen. Coxæ, femora, and tibiæ reddish; a brown patch appears on the under surfaces of knees in the posterior femora. Tarsi blackish, claws of male elongate, pulvilli smoky at base, paler at apices. Wings rather narrow, veins brown, costal spine obsolete. A slight brownish stain bordering the anterior cross vein. Apical cell distinctly open in male, in female sometimes nearly closed. Bend of fourth vein abrupt, without stump or wrinkle. Third vein bearing three or four weak, short bristles at base.

Habitat.—Eagle Tail Mountain, Colfax County, New Mexico. Described from four specimens. One pair taken in copulation and pinned together.

Type.—Female; Cat. No. 18342, U.S.N.M.

RHYNCHIODEXIA STRIATA v. d. Wulp.

Two specimens corresponding closely to Van der Wulp's figure and description from Eagle Tail Mountain.

Genus ZELIA Desvoidy.

ZELIA WILDERMUTHII, new species.

Plate 6, figs. 2 and 3.

Opaque cinerous, nowhere shining, wings grayish hyaline, legs reddish. Antennæ yellow. Length, 10–13 mm.

Head much higher than long, slightly longer at base of antennæ than at vibrissæ. Cheeks two-thirds as wide as eye height, cinereous; a reddish yellow, irregular, reflecting stain running from lowest corner of eye to vibrissal angle. Front in female one and one-half, in male two-thirds as wide as eye. Median vitta of same width in both sexes, reddish brown, twice as wide at base of antennæ as at apex of ocellar triangle. Female bearing two pairs of orbitals, absent in male. Two pairs of ocellar bristles, present in male, the posterior pair much reduced in female. Frontal bristles rather weak, not extending below base of second antennal joint. Antennæ slender, reddish yellow; in female three-fourths, in male two-thirds as long as face. Third joint concave on anterior margin. Arista reddish, thickly and finely plumose, in female longer than third antennal joint, second joint short. Second antennal segment bearing a long slender bristle nearly or quite one-half length of third antennal joint. Vibrissæ situated on oral margin. Palpi and proboscis reddish yellow, the latter very short and fleshy. Genæ and

parafacials naked, cinereous. Eyes bare. Thorax opaque, ochraceous, marked with four slender brown longitudinal vittæ. The inner pair slightly, the outer broadly interrupted at suture and vanishing before posterior third of post-sutural area. Scutellum opaque cinereous, its suture with the mesonotum narrowly shining black; bearing two pairs of long marginal and a long cruciate apical pair. Post-sutural bristles four; sterno-pleurals three. Abdomen (pl. 6, fig. 3) ochraceous cinereous, slightly wider than thorax at base, saggitate in form. Apex rather acute. Four segments visible, exclusive of the very short basal one, first segment bearing a median black spot which expands at base beneath scutellum, extending caudad almost to but not touching posterior margin of segment, usually inclosing a linear median ochraceous spot on its apical third; second segment bearing a faint median longitudinal band expanding and becoming more distinct at posterior margin of segment, which it does not touch. Third and fourth segments, including hypopygium, immaculate except at bases of principal macrochaetæ, which are surrounded by a blackish ring. In some specimens segments 1 and 2 bear triangular black spots at bases of lateral marginal macrochaetæ. First abdominal segment destitute of median marginal bristles, second segment bearing a stout pair of marginals. Third and fourth segments bearing both discal and marginal macrochaetæ. Hypopygium of the male visible, that of female concealed. Tibiæ and femora, including coxæ, reddish, yellowish pollinose. Tarsi black, pulvilli dusky, front claws of male elongate. Squamæ yellowish. Wings rather long, grayish hyaline. Longitudinal and cross veins margined with a scarcely perceptible brownish stain. Veins brownish. Costal spine obsolete. Bend of fourth vein abrupt, destitute of stump or wrinkle. Apical cell open in margin of wing and with a distinct neck at apex. Third vein bearing two or three bristles at base only. In greasy specimens (and *Dexiids*, usually become so) the median band on second abdominal segment appears distinctly black.

Habitat.—Open mesa, Koehler, New Mexico.

Type.—Female; Cat. No. 18341, U.S.N.M.

This species is usually found sitting upon the ground on low herbage and is very common. One specimen seemingly identical with this standing in United States National Museum (from Custer County, California), as *melanocera* Desvoidy. The original description of that species says "Antennæ black," and is exceedingly brief. The present species has yellow antennæ and is evidently distinct.

Family TACHINIDAE.

Genus GYMNOSOMA Meigen.

GYMNOSOMA FULIGINOSA Desvoidy.

One robust specimen taken near irrigation pond.

Genus MYIOPHASIA Brauer and von Bergenstamm.

MYIOPHASIA SETIGERA Townsend.

A series of more than 40 specimens was taken on the mesa. This species at first glance resembles very closely some specimens of *M. aenea* taken in the northeastern portions of the United States. It is, however, usually more bristly as regards the sterno-pleural region, most of these specimens possessing three or more sterno-pleural bristles. Several of the individuals bear but two. An actual measurement of the angle included between the penultimate section of the fifth vein and the hind cross vein in a series of 20 specimens in this species gives an average of 114° . The same angle in a similar number of specimens of *M. aenea* taken in various parts of the north and east gives an average of 92° , a difference of 22° . Thus it appears that the excess of obliquity of the hind cross vein in *M. setigera* is a good specific character, much more stable in fact than the hairiness of the eyes, the presence or absence of a weak pair of marginal macrochaetæ on the second abdominal segment, or the closing or opening of the first posterior cell. These latter characters are all variable and unreliable within specific limits in this genus.

MYIOPHASIA ROBUSTA Coquillett.

A series of 15 specimens male and female collected on sunflowers in an arroyo on mesa. The type of this species, a large male, seems to be the only specimen mentioned in the literature; accompanying it in the National Museum collection are three specimens from Mexico City, Mexico. This is a very distinct species. The female has not been described, and as the sexes are dichroic, a description is appended herewith.

Female.—Uniform cinereous pollinose, abdomen slightly brassy. Front fully one and one-half times as wide as either eye, sides widely divergent below. Frontal vitta dark brown, occupying one-third of width of front at narrowest part. Parafacials wider than facial depression. Cheeks nearly two-thirds as high as eye, yellowish gray pollinose. Antennæ reddish, third antennal joint on anterior edge brown, about one and one-half times as long as second joint. Arista incrassated at extreme base, microscopically pubescent. Proboscis and palpi nearly black. Two pairs of orbital bristles, parafacials bearing a distinct row of large hairs extending from base of antennæ to the lower edge of eye, other scattered hairs also present. A pair of cruciate frontals immediately before ocelli. Eyes usually

bearing long but scattered hairs on the lower half; some specimens have a few hairs upon the upper portion of eyes; in one specimen eyes almost nude.

Thorax and scutellum opaque cinereous pollinose, two pairs of longitudinal vittæ visible, inner pair narrow, distinct anterior to suture, obsolete posterior thereto. Outer vittæ reduced to mere spots. Post-sutural macrochaetæ three, sterno-pleural bristles usually four. Scutellum bearing three pairs of marginals, the apical pair being longest. Abdomen ovate, cinereous pollinose with a slightly brassy shine. A weak median macrochaeta, or sometimes two, distinguishable on margin of second abdominal segment. Legs, including tarsi, entirely black. Wings hyaline. Veins yellowish, first posterior cell either distinctly open or barely closed in costa close to but before the wing tip. The angle of the posterior cross vein measures 115° , the average of 10 specimens, male and female. Length, 6-8 mm. Described from six specimens. The male differs from female in that he is shining black excepting the front, base of second and all of third and fourth abdominal segments, which are cinereous pollinose.

WEBSTERIANA, new genus.

Plate 6, fig. 4.

Palpi present well developed, antennæ reaching only slightly below middle of the face, first longitudinal vein bare, costal spine long, costa with a narrow but distinct break at tip of auxiliary vein. Sides of face bearing a row of five or six slender proclinate macrochaetæ extending from base of antennæ to near lower corner of eye. First posterior cell closed, petiolate ending well before tip of wing. Hind cross vein at middle of discal cell or slightly before. Cheeks less than one-half eye height, lower occiput swollen. Head nearly as long as vibrissæ as at base of antennæ, eyes of male distinctly hairy, in female bearing indistinct scattered hairs. Vibrissæ situated about the length of second antennal joint above oral margin.

Type of the genus.—*Tricogena costalis* Coquillett.

This genus is named in honor of Prof. F. M. Webster. Mr. Coquillett's specimen was a unique female in bad state of preservation. My series of 10 specimens, including both sexes, shows conclusively that it can not be placed in *Tricogena* Rondani. It is distinct from *Metacheta* by its bare first vein and from *Rhinophora* by the row of macrochaetæ on cheeks, bare arista, etc.

WEBSTERIANA COSTALIS Coquillett.

Plate 6, fig. 5.

Slender, black, silvery pollinose, wings milky, costal margin infuscated. Length 5 mm. Front in female at narrowest part same width as eye, in male one-half as wide. Two pairs of orbitals in the female, absent in male. Entire head exclusive of frontal vitta hoary frosted

with pollen. Frontal vitta opaque black. Antennæ black, third joint in female distinctly longer than second, in male about same length as second. Palpi brownish, proboscis dark brown. Arista black, bare, bulbous at extreme base, second joint not longer than broad. Lower occiput with whitish hairs. Thorax and scutellum black, uniform frosty pollinose. Vittæ almost obsolete. Post-suturals three, sterno-pleurals two. Abdomen elongate ovate, shining black, bases of second and third segments silvery pollinose, first three segments bearing marginal macrochaetæ only, fourth bearing discs also. Legs, including tarsi, black, middle tibiæ bearing two macrochaetæ, one long and one short, on the front side near middle. Claws of male elongate. Pulvilli white. Calypters white. Wings milky, strongly infuscated along costal border extending dilutely into first posterior cell, which is closed and petiolate. The petiole slightly longer than anterior cross vein, third vein bearing a row of from two to five rather long bristles on basal third. Veins black excepting fifth longitudinal and those inclosing second and third basal cells, which are pale. Anal vein does not reach posterior margin of wing. Ten specimens, male and female, collected on sunflowers August 1-12 on prairie. This pretty species presents an odd sight in nature, as it has the habit of extending the wings at right angles to the body, walking about with them in this position like some *Ortalids*, a habit unusual among Tachinidæ.

Genus TACHINOPHYTO Townsend.

TACHINOPHYTO DUNNINGII.

Several specimens from mesa, the first record of this species from the southwest.

Genus LEUCOSTOMA Meigen.

LEUCOSTOMA SENILIS Townsend.

Three specimens from mesa July 24. This species is undoubtedly distinct from *neomexicana* Townsend, which Mr. Coquillett placed in the synonymy.

Genus CLYTIOMYIA Rondani.

CLYTIOMYIA FLAVA Townsend.

A male and two females from sunflowers August 1 to 12.

Genus HETEROPTERINA Macquart.

HETEROPTERINA NASONI Coquillett.

A few specimens of this minute species were collected on mesa. An unpublished note by C. N. Ainslie, bearing Webster No. 6112 in the files of the Bureau of Entomology, records the rearing of two specimens of this fly from grasshoppers at Payson, Utah, July 10, 1911. The first indication of its host relations.

Genus *PLAGIOPROSPHERYSA* Townsend.*PLAGIOPROSPHERYSA PARVIPALPUS* v. d. Wulp.

A series of 12 specimens collected on mesa; these vary in size from 5 to 7 mm.

Genus *PLAGIA* Meigen.*PLAGIA AMERICANA* v. d. Wulp.

On mesa August 6.

Genus *SIPHOPLAGIA* Townsend.*SIPHOPLAGIA ANOMALA* Townsend.

One male from sunflower August 10.

Genus *SENOTAINIA* Macquart.*SENOTAINIA TRILINEATA* v. d. Wulp.

A series of eight specimens collected. It is abundant here, but sits on the ground on stones and is difficult of capture.

SENOTAINIA RUBRIVENTRIS Macquart.

Found in company with the preceding species.

Genus *PACHYOPHTHALMUS* Brauer and von Bergenstamm.*PACHYOPHTHALMUS FLORIDENSIS* Townsend.

A series of 10 specimens from an arroyo on mesa. If the extra row of weak frontal bristles be disregarded, this species will go into *Senotainia*. Occasionally one finds a specimen in which the outer rows of bristles are nearly obsolete. Thus a few specimens of this species were found standing in the United States National Museum collection under *Senotainia rubriventris*, from which species it is easily distinguished by its bright yellow antennæ and black hypopygium. One specimen bearing label "Coll. Townsend, Brownsville, Texas, June," has the abdomen reddish in ground color, but is otherwise identical with *floridensis*.

Genus *SIPHOSTURMIA* Coquillett.*SIPHOSTURMIA ROSTRATA* Coquillett.

A pair taken on the dry mesa about flowers. This is the first record of this species from the arid southwest.

Genus *EXORISTA* Meigen.*EXORISTA PYSTE* Walker.

In the foothills, among the scrub oaks, early in August, this species was present in swarms. Their high-pitched, mosquitolike note could be heard many feet distant. No insect which might serve as a host could be discovered on the oaks at this time, but Mr. Wildermuth's notes show that these bushes had been heavily infested by a species of *Malacosoma* a few weeks previously.

Genus PHOROCERA Desvoidy.

PHOROCERA CLARIPENNIS Macquart.

The most widely distributed *Tachinid* to be found on the mesa. Often attracted to one's person, possibly by perspiration, alighting on the clothing and even upon the hands. Varies enormously in size. A series of 50 specimens collected over a wide area and under varying conditions of moisture, etc. Reared by C. N. Ainslie and V. L. Wildermuth from *Hemileuca oliviae* Cockerill in New Mexico. Its percentage of parasitism in some restricted localities is very high on this host. One large female taken on summit of Eagle Tail Mountain, elevation 7,500 feet or more, August 3.

Genus NEOPALES Coquillett.

NEOPALES (LYDELLA) DORYPHORAE Riley.

Plate 7, fig. 6.

A series of 19 specimens collected in prairie arroyo July 20 to August 10. In proposing a new genus, namely, *Doryphorophaga*,¹ for the reception of this species Mr. Townsend says: "The eyes are thickly hairy. * * * The intermediate (second and third) abdominal segments bear discal bristles and the ventral carina and curved spine-like piercer, both of ordinary character, are present in the female." Examination of all available material shows these statements to be incorrect in part. The eyes are thickly hairy in the male as a rule, those of the female being so nearly bare in some cases as to require the utmost care in order to see the hairs at all. The intermediate segments of the abdomen seldom bear discal macrochaetæ in either sex and are almost invariably absent in the female. The "ventral carina" does not exist in the sense that we find it in *Compsilurd*, *Celatoria*, and *Chaetophleps*. In these genera there is present a distinct carina or compressed tubercle armed with greatly modified macrochaetæ forming toothlike spines projecting downward and backward.

In the species under discussion the carina, though present, is very slightly developed and indeed often concealed entirely, especially in freshly killed individuals. A piercer certainly exists, as Mr. Townsend says, also one of the New Mexican females upon dissection showed the presence of 22 fully developed and 15 undeveloped maggots measuring about one-third mm. in length and armed with a long, slender, curved mouth hook and the rows of spines described by Mr. Townsend; until further and more reliable external characters, especially in the case of the male, are discovered, it would seem expedient to retain the species in the genus *Neopales* (*Phorocera* of authors) for the present. Figures of the abdomens of this species, figure 6, and *Compsilurd concinnata*, figure 7, are afforded herewith for purposes of comparison. These are partially diagrammatic in that the minor vestiture is omitted.

¹ Proc. Ent. Soc. Wash., vol. 14, p. 164.

Genus STURMIA Desvoidy.

STURMIA ALBIFRONS Walker.

One female from mesa.

STURMIA BAKERII Coquillett.

Two males from summit of Eagle Tail Mountain resting on pinon pines.

STURMIA INQUINATA v. d. Wulp.

One specimen from mesa August.

Genus TACHINA Meigen.

TACHINA MELLA Walker.

Rearred from *Malacosoma fragilis* Strand on scrub oak July 17, 1913, at Koehler, by Mr. Wildermuth, also from *Hemileuca oliviae* Cockerell by Messrs. Ainslie and Wildermuth.

Genus PHORICHAETA Rondoni.

PHORICHAETA CINEROSA Coquillett.

One specimen from flowers on mesa August 10.

Genus ARABA Desvoidy.

ARABA TERGATA Coquillett.

Two females from bottom of arroyo in mesa.

Genus GONIA Meigen.

GONIA CAPITATA De Geer.

Six large light colored specimens from vicinity of streams and ponds August 1-8.

Genus CHAETOGAEDIA Brauer and von Bergenstamm.

CHAETOGAEDIA CREBRA v. d. Wulp.

One female from summit of Eagle Tail Mountain August 3.

Genus NEODICHOCERA, new genus.

Closely related to *Diochocera*, Williston.

Palpi slender but otherwise normal, face bearing a row of rather strong macrochaetæ extending from root of antennæ to a point slightly below the lower corner of eye. Tip of apical cell ending distinctly before tip of wing, eyes strongly hairy (in male). Posterior end of hind cross vein nearer margin than to small cross vein. Distance from bend of fourth vein to posterior cross vein nearly one-half as great as that from small cross vein measured along fourth vein. Facial ridges bristly on lowest fifth; antennæ inserted at a point opposite upper corner of eye. Last segment at most eight times length of second, divided into three lobes, the inner one the stoutest and bent outward in a right angle at its apical fifth. Male destitute of orbital bristles. Penultimate joint of arista in male at least four times longer than broad, first joint subequal to it, attached to base of middle lobe of third antennal joint. Other head characters as shown in plate 7, figures 8-9.

Type of the genus.—*Neodichocera tridens*, new species.

NEODICHOCERA TRIDENS, new species.

Plate 7, figs. 8-12.

Black Sarcophagidlike, silvery gray pollinose. Length, 8-9 mm. Extreme tip of abdomen and visible hypopygium yellow. Head slightly broader than thorax. Frontal vitta bright reddish brown, exceedingly short, not longer than width of front at narrowest point. Ocellar triangle and sides of front black, gray pollinose, bearing a single frontal row on each side, outside of these sprinkled with fine black erect hairs to a point slightly below middle of eye. Orbital bristles absent. Checks about as wide as eye height, black, densely hairy, hairs merging into macrochaetae on anterior margins. Vibrissae strong, cruciate, placed on oral margin. Transverse impression of face well marked, brownish.

Proboscis brown, slightly longer than one-half height of head, palpi yellow. Antennæ nearly as long as face, first segment brown, projecting distinctly above level of front, second joint yellowish, bearing one unusually strong, proclinate macrochaeta on its lower front edge. Third joint brown, distinctly grayish pubescent, divided into three long lobes, the inner, the longest, the outer, the shortest. Arista nearly as long as third antennal joint, thickened almost to the tip, black, length of segments variable. Occiput excepting space above central foramen thickly gray pilose. Eyes densely hairy except along posterior margin. Thorax black, gray pollinose with four distinct black vittæ on the dorsum, extending to but coalescing immediately before scutellum. Scutellum rather small, rounded, black at base, piceous on apical two-thirds. Bearing three or four pairs of long marginals, also a strong discal pair. Dorso-central bristles four, sterno-pleurals two. One specimen bears a single long apical scutellar bristle. Abdomen ovate, black, pseudo-maculate, with a distinct black median vitta, gray pollinose. Segments 2 and 3 with a slight rufous tinge on sides. Fourth segment black at base, apical half and hypopygium yellowish red. First two segments destitute of discals and marginals on dorsum. Third bearing a median marginal pair. Hypopygium bearing black bristles. Legs, including tarsi, entirely black. Middle tibiae (pl. 7, fig. 10) bearing three strong macrochaetae on front side near middle. Hind tibiae (pl. 7, fig. 11) coarsely pectinate with macrochaetae. Calypters white, wings (pl. 7, fig. 12) hyaline, comparatively small, veins black, costal spine almost obsolete. Bend of fourth vein obtusely angular, destitute of stump or wrinkle. Apical cell distinctly open in margin before tip of wing. Base of third vein bearing five or six weak bristles.

Habitat.—Koehler, New Mexico.

Described from two males. Species resembles superficially *Dichocera lyrata* Williston, collected by Dr. J. M. Aldrich in Idaho 18 years ago,¹ but structurally quite distinct.

Type.—Cat. No. 18343, U.S.N.M.

¹ Ent. News, vol. 6, p. 29.

Genus PELETERIA Desvoidy.

PELETERIA ROBUSTA Wied.

One large specimen from foothills July 19. Two males from summit of Eagle Tail Mountain August 3.

Genus ECHINOMYIA Latreille.

ECHINOMYIA ALGENS Wied.

One large female collected on tent in camp, September, by Mr. Wildermuth.

EXPLANATION OF PLATES.

PLATE 6.

- Fig. 1. *Rhynchioderia flavotessellata*, head.
2. *Zelia wildermuthii*, head.
3. *Zelia wildermuthii*, abdomen, dorsal view.
4. *Websteriana costalis*, head.
5. *Websteriana costalis*, wing, dorsal view.

PLATE 7.

- Fig. 6. *Neopales doryphoræ*, abdomen, lateral view.
7. *Compsilura concinnata*, abdomen, lateral view.
8. *Neodichocera tridens*, head, lateral view.
9. *Neodichocera tridens*, head, front view.
10. *Neodichocera tridens*, left middle tibia.
11. *Neodichocera tridens*, left hind tibia.
12. *Neodichocera tridens*, wing.